In-store Shopping Behavior for Value Added Cheese

Awasar Ghimire (aghimir3@vols.utk.edu), Department of Agricultural and Resource Economics
Charles C. Martinez (cmart113@utk.edu), Department of Agricultural and Resource Economics
Alicia Rihn (arihn@utk.edu), Department of Agricultural and Resource Economics
Liz Eckelkamp (eeckelka@utk.edu), Department of Animal Science
The University of Tennessee, Knoxville

Selected Poster prepared for presentation at the 2025 AAEA & WAEA Joint Annual Meeting in Denver, CO: July 27-29, 2025

In-store Shopping Behavior for Value Added Cheese

Awasar Ghimire*[1], Charles Martinez[1], Alicia Rihn[1], Liz Eckelkamp[2]

Department of Agricultural and Resource Economics[1], Department of Animal Science[2]

The University of Tennessee, Knoxville

Introduction

- The U.S. dairy industry has sustained a sharp decline in small farms due to low profits, rising input costs, and competition from larger farms with economies of scale (Jones, Martinez, & Eckelkamp, 2022; Zaring, 2022).
- Value-added products offer a promising path for small farms to improve profitability by capturing more consumer dollars and diversifying income (Cucagna & Goldsmith, 2018).
- Consumer preferences for general dairy products are well studied, but insights on value-added products like specialty cheeses are limited.
- Additionally, the use of eye-tracking technology to understand consumer behavior in dairy retail settings remains underexplored.

Objectives

- Evaluate the impact of communication strategies, demographics, and shopping behaviors on consumer spending in value-added cheese in a retail setting.
- Analyze shoppers' cheese-buying behavior by examining intrinsic/extrinsic cues and mapping in-store shopping paths to identify high- and low-traffic zones.

Study Design & Method

- Data was collected from 98 shoppers at a farm retail outlet in the Southeastern U.S. during May and September 2024 using eye-tracking technology and survey.
- Participants were recruited through in-store advertisements and received a $20 incentive to either spend in-store or retain, before the start of the experiment.
- The experiment consisted of three stages: Participants were first exposed to an advertisement either through a video or a graphic image (treatments) to simulate marketing communication.
- In the second stage, participants wore eye-tracking glasses while shopping in the store and made purchases, allowing us to capture visual attention and purchase behavior.
- After shopping, participants completed a survey capturing purchasing behavior, industry knowledge, and demographic information.

Figure 1: Video treatment used in the study

Scan me for the video

Figure 2: Graphical treatment used in the study

Figure 3: Consumer looking at wall poster for prices of cheese products through eye tracking glasses

- We employed OLS regression with a log-linear transformation to examine how treatment, demographics, and purchasing behaviors influenced consumer spending in-store.

$$ln(T_i) = \beta_0 + \beta_1 \cdot Treatment_i + \beta_2 \cdot Demographics_i + \beta_3 \cdot PurchasingBehavior_i + \varepsilon_i$$

where, T_i: Total amount spent by participant i
ε_i: Error term

- A logistic regression model was used to assess how visual attention to intrinsic and extrinsic cues influenced the likelihood of purchasing cheese products:

$$logit(P_i) = ln(P_i / (1 - P_i)) = \beta_0 + \beta_1 \cdot IntrinsicCues_i + \beta_2 \cdot ExtrinsicCues_i + \varepsilon_i$$

where, P_i: Probability that participant i purchased a cheese product
ε_i: Error term

Results

Percentage spent on cheese vs non-cheese products

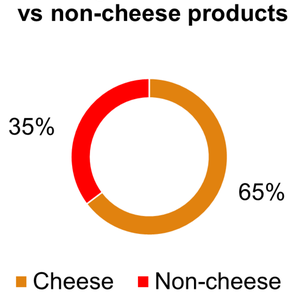

Figure 4: Percentage of total spending on cheese and non-cheese products made by participants

Percentage spent on different cheese products

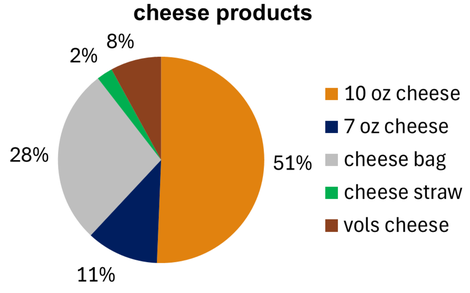

Figure 5: Percentage of spending on different cheese products made by participants out of total spending on cheese

Table 1. Log-linear OLS results for factors affecting total amount spent

Variables	Estimates (SE)
Graphical Treatment	-0.246 (0.251)
Group Shoppers	0.353 (0.341)
Purchase once a month	**1.013*** (0.345)**
Purchase 2/3 times a month	0.275 (0.350)
Purchase weekly	0.619 (0.449)
Extremely Satisfied with purchase	**0.762* (0.412)**
From Small Town	**1.016*** (0.361)**
From Sub-urban	**0.693** (0.294)**
From Urban Area	**0.886* (0.480)**
Female	0.223 (0.303)
Constant	1.996** (0.849)
N	98

Note: ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively. Reference categories: video treatment (for graphical), individual shoppers (for group), never buy farmstead cheese (for purchase frequency), somewhat satisfied (for satisfaction), rural (for residential area), and male (for female).

Shopper's engagement with intrinsic and extrinsic cues

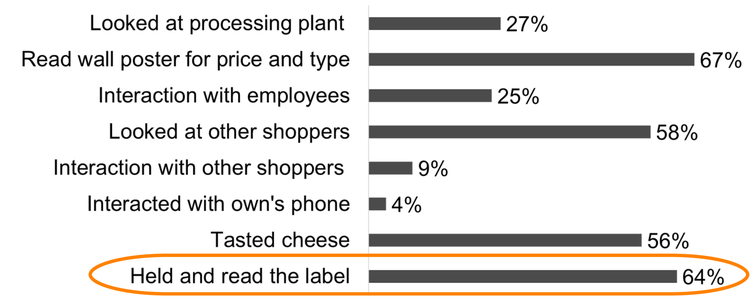

Figure 6: Shopper's engagement with intrinsic and extrinsic cues during their shopping journey (n=98); the orange oval denotes the cue that significantly impacts consumer likelihood to buy cheese at 5% level of significance

Map of the store with areas of low traffic

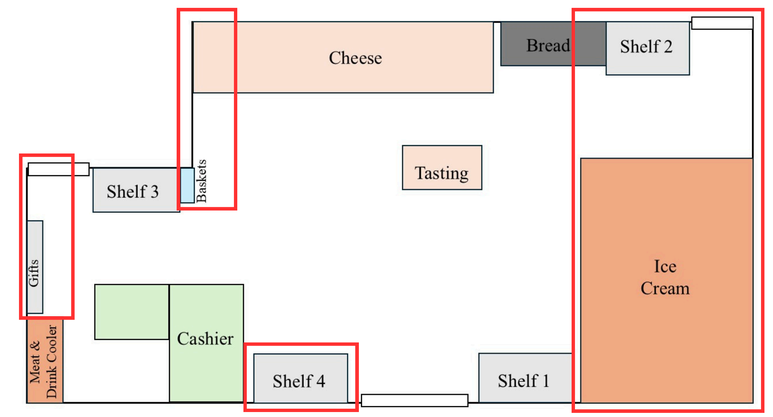

Figure 7: Layout of the store with areas of low traffic represented by the red boxes. All the areas outside the red boxes are areas of high traffic.

Conclusion

- **Mode of communication and shopping in groups do not affect spending in the store, possibly due to the familiarity of shoppers with the store**
- **Product Information is the most sought factor that affects the purchasing decision of shoppers for cheese products**
- **Opportunity for targeted product development and inventory management**
- **Opportunity for the store to re-design areas of low concentration to pull more shoppers and maximize sales**

References

- Cucagna, M. E., & Goldsmith, P. D. (2018). Value adding in the agri-food value chain. *International Food and Agribusiness Management Review,* 21(3), 293-316. https://doi.org/10.22434/IFAMR2017.0051
- Jones, S., Martinez, C., & Eckelkamp, E. (2022, January). Impact of region and year on profitability across the United States. In *Journal of Dairy Science,* 105, 8-9.
- Zaring, C. (2022). *Tennessee value-added dairy: State of the industry, consumer perceptions, and investment opportunities* [Master's thesis, University of Tennessee, Knoxville]. https://trace.tennessee.edu/utk_gradthes/6494

***Corresponding Author:**
Awasar Ghimire
Graduate Research Assistant (MS)
Email: aghimir3@vols.utk.edu

Acknowledgement: This study is funded by the Southeast Dairy Business Innovation Initiative (SDBII) project under USDA AMS grant.

THE UNIVERSITY OF TENNESSEE KNOXVILLE

UTIA INSTITUTE OF AGRICULTURE THE UNIVERSITY OF TENNESSEE